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CLAIMS

1. A light-storing fluorescent spherical powder comprising an alkaline earth metal aluminate as a main component and a transition metal element such as lanthanoid as an activator, in which said powder comprises a spherical powder.

2. A light-storing fluorescent spherical powder according to claim 1, wherein said light-storing fluorescent spherical powder comprises a fine particle powder with a particle size of $1 - 100 \mu$ or smaller.

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3. A light-storing fluorescent spherical powder according to any one of claims 1 and 2, wherein said light-storing fluorescent spherical powder has the general formula: $(A_{1-z-y}D_xE_y)O \cdot a(G_{1-z}H_z)_2O_3$

wherein A is one element or two or more elements selected from the group consisting of Mg, Ca, Sr and Ba of alkaline-earth metals and Zn of a bivalent metal, D is Eu as an activator, E is one element or two or more elements selected from the group consisting of Dy, Nd, Ho, Er, Tm, Yb and Lu of lanthanoids as co-activators and the group consisting of Mn, Zr, Nb, Ti, Sb, Li, Ge, In and W of a transition metal, and G is Al of mother crystal, and H is any one of B and Ga of mother crystals, and x, y, z and a are respectively numbers within the following ranges:

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$$0.0001 < x < 0.5$$

$$0.0001 < y < 0.3$$

$$0.0001 < z < 0.5$$

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$$1.5 < a < 3.0.$$

4. A process of manufacturing a light-storing fluorescent spherical

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powder comprising preparing as a raw material a light-storing fluorescent powder that has been previously synthesized or a light-storing fluorescent precursor powder that has been produced by pre-reaction of a synthetic raw material of a light-storing fluorescent material, and passing said prepared raw material through
5 a region heated to a temperature higher than a melting point of a light-storing fluorescent material, thereby forming said raw material into spherical shape.

5. A process of manufacturing a light-storing fluorescent spherical powder according to claim 4, wherein said region heated to a temperature higher
10 than said melting point comprises a plasma region.

6. A process of manufacturing a light-storing fluorescent spherical powder according to claim 5, wherein said plasma region is provided by any one of direct-current plasma jet of non-transfer type, direct-current plasma jet of transfer
15 type, high-frequency induction heating plasma, plasma generated by arc heating, and the like.